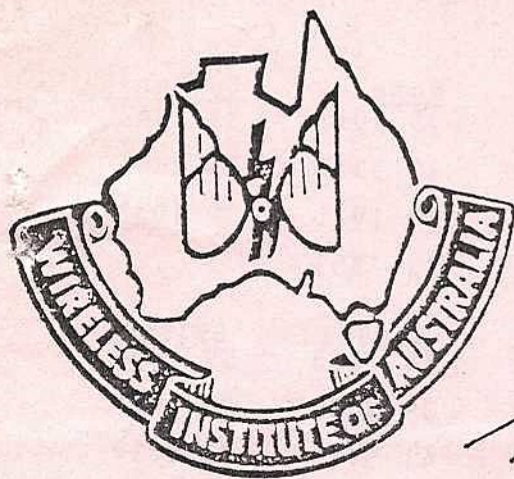


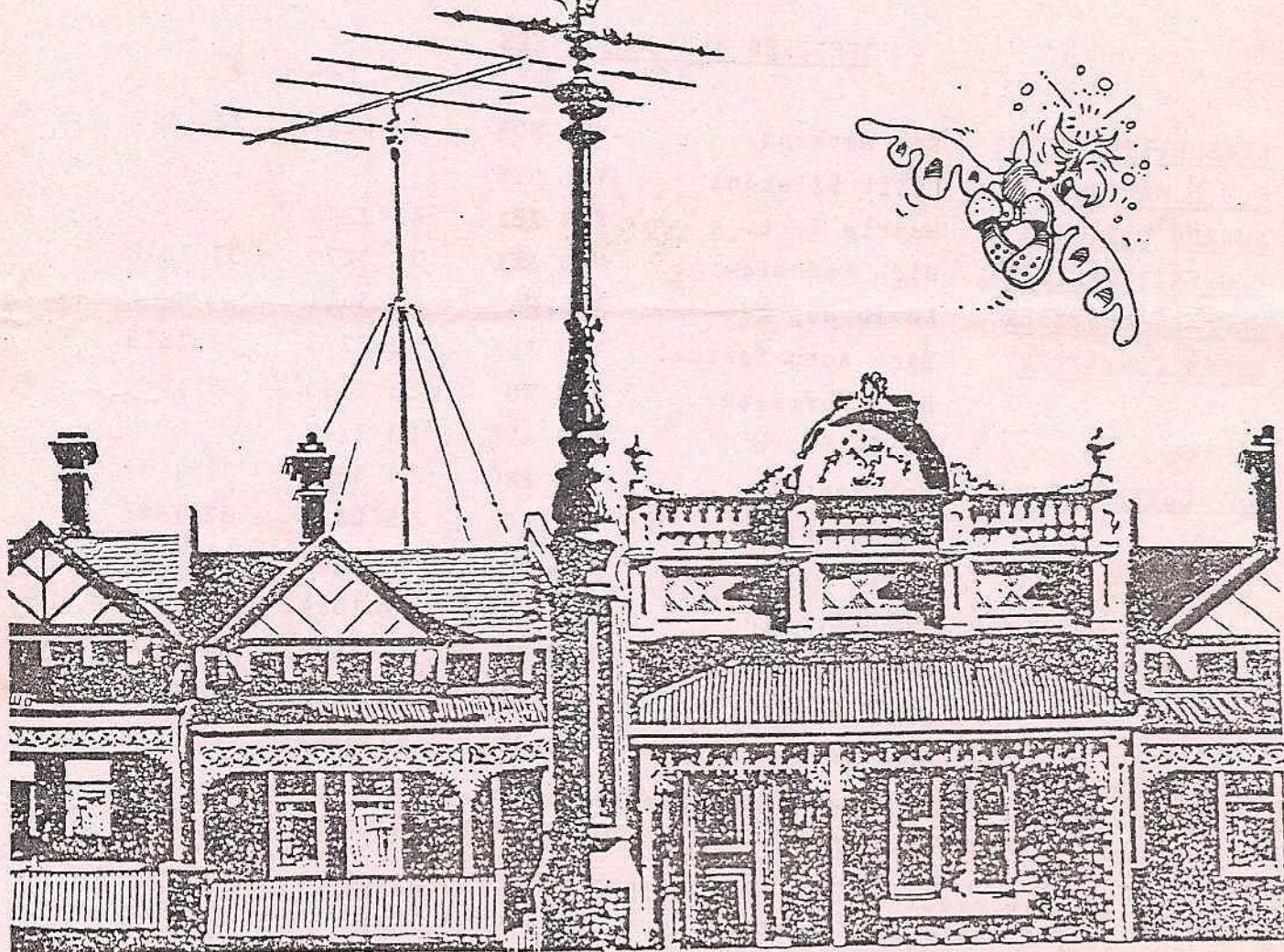
88/04

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B.A.R.G. NEWS

APRIL 88.



© Monthly Newsletter of the
Ballarat Amateur Radio Group

REGISTERED BY AUSTRALIA POST, PUBLICATION NO. V8H3397

BALLARAT AMATEUR RADIO GROUP INCORPORATED. OFFICERS 1987-88.

88/04 02

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<u>MEMBERS REPRESENTATIVE</u>	Neil Davidson.	VK3 KQQ	35 9612	

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	Dick Forrester.	VK3 VU	35 7663	39 1001
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	Ron Watkins.	VK3 XOA	35 6017	32 1447
	Dick Forrester.	VK3 VU	35 7663	39 1001
	John Brown.	VK3 CJB	39 1014.	
<u>TECHNICAL COMM.</u>	Dick Forrester.	VK3 VU	35 7663	39 1001
	Phil Seddon.	VK3 AQM	31 5220	31 3166
	Maurie Batt.	VK3 XEX	42 2245	

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B.A.R.G.meets on the LAST FRIDAY of every month except December at the Ballarat Education Centre, Hopetoun St, Ballarat. 7.30pm.

Committee meetings are held at the Education Centre on the Wednesday two weeks prior to the Club meeting at 7.30pm. Members of the Executive Committee are expected to attend and any Club Member with business for discussion is welcome.

All correspondence should be addressed to -
The Secretary, B.A.R.G.Inc, P.O.Box 216E, Ballarat East. 3350.

Applications for Awards to-Maurie Batt, R.S.D.Rokewood Junction. 3351.

PRESIDENT'S CORNER

The recent spell of fine weather has probably found many of us pottering around outdoors in lieu of playing radio indoors. I for one have certainly been making the most of the fine weather, by working in the garden, with radio taking a back seat. With the nights closing in very fast, there seems to be less time to do all those things you would like to get done. Take heart, summer is only 7 months away.

Various members of the B.A.R.G. have occupied themselves with several activities over the last few months. The first being the Begonia Festival run. Through the efforts of Jeff VK3PAP, we received some valuable publicity in the Courier. The day of the run was ideal, with members consisting of VK3's AAP, DOK, DMK, BNC, KQF, KQQ, XOA. No problems were encountered with any runners, and the morning went off without a hitch. The second event was the John Moyle field day, which was held in glorious sunshine, south of Ballarat. Members who attended on Saturday set up antennas, equipment, tents etc. Although VHF-UHF contacts were almost nonexistent on Saturday, 40 and 80 meters were wall to wall contest stations. Although I could only attend on the Saturday, it was very enjoyable both social and radio wise. Thanks to VK3's VU, WN, DFI and XEX for holding the fort on Saturday. See story from Maggie VK3CFI for a report on Sunday's activities.

One event the club could not participate in was to provide communications for the Begonia Festival procession. This was due to lack of notice.

Several excellent speakers will be attending the next few meetings, so the after meeting entertainment should be first class.

In closing, I would like to offer my apologies for not attending the meetings this year, due to work commitments. But rest assured I will return at the April meeting. Thanks to John VK3CFH for presiding over the meetings.

73, Ron VK3XOA.

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Of Ball-Bearings and a Willy-Willy

Field Day 1988 was held over the weekend of March 19-20. The weather was grand. Blue skies and clear nights with the Milky Way just begging the amateur astronomers to get out their telescopes. So, really, what can Murphy do when the weather is superb? There is no mud or gale wind to contend with.

Actually Murphy did little this year. (It's about time!) A few members decided to motor out to Dereel in the Misery Ranges and set up there. Truly, I have listened to Maurie XEX extol the place for years so this year I finally saw it.

Maurie was in charge of the VHF and UHF portions of the band. Kevin WN and Dick VU were the chief operators for the HF portion. Maurie now has the portable shack in perfection stage: his station wagon and homebrew everything else just about set themselves up. His portable setup is in better order than my shack. Maurie also brought along a quiet Suzuki generator to power his batteries.

Dick and Kevin set up a tent and two dipoles-- one for 40 m and one for 80 m. The paddock we were in was flat, and a few trees just with the right spacing held up the antennas. On Saturday, Lou DFI, Max YMW, and Ken showed up to do some operating. After the tents were up and the antennas were ready, a whirling funnel of sand, dust, and hay swirled past. At the last minute, it veered away from the tent. A willy-willy at work. Late, late that night, Geoff ADB put his voice to the mic and grabbed a few more contacts.

Sunday morning, Lou and I managed to show up and work a few more. I asked Maurie, Kevin, and Dick how they fared during the night. "Well," said Maurie, "I wouldn't have minded so much if it weren't for all these ball bearings." And the source of the ball bearings made themselves known -- a mob of sheep, about 500 strong, strolled over to have a good look at us.

Shortly after noon, antennas came down and all the gear was stowed away. As we turned toward Colac, another willy-willy dashed by and waved farewell.

de Maggie VK3CFI

88/04 05

MINUTES OF GENERAL MEETING HELD 25th MARCH 1988.

MEETING OPENED by Vice President John VK3 CFH at 7.55pm with 20 members in attendance. John welcomed two new members and Fred PFF who has been sick, he also presented Fred with a capsule measuring 2"x1" which he assured Fred would prevent any re-occurrence of his problem.

APOLOGIES VK3aap, ait, aex, cuh, ccb, wn, se, niz. XCA

MINUTES of previous meeting as circulated were confirmed. BNC/PUW.

CORRESPONDENCE IN Letter of thanks fro Ballarat Courier for assistance with communications on Begonia Classic Fun Run.

TREASURERS REPORT General a/c. \$279.18. VS&L a/c. \$2000.00.
Accounts for \$70.40 passed for payment. BTX/PUW.

QSL BUREAU Geoff PAP reported 111 cards in and 159 out.

AWARDS No applications.

CLUB NET Reg CAZ stated that net is *Prospering*.

EDUCATION Ian BTX has approached the B/rat Computer Group with regard to a combined night and Packet demonstration. Awaiting reply.

GENERAL BUSINESS Maurie XEX reported on the John Moyle weekend with contacts being made on VHF, UHF, 40 and 80mtrs. Members taking part were XEX, VU, WN, DFI, ADB. XCA,
Maurie also requested that a letter of thanks be sent to Mr Daryl Smith at Cape Clear for use of his paddock.

Dick VU reported receiving the offer of a 1kva generator at a very reasonable price.
Moved Gordon PUW seconded Clarrie DMK that club purchase same for \$20.00. motion carried..

Moved Gordon PUW seconded Maurie XEX that club pay \$15.00 for petrol used in generator at John Moyle. carried.

MEETING CLOSED at 8.35pm.

REG CAZ then gave a talk on 'early days of Radar! Thanks Reg.

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Jim CFB. secretary..

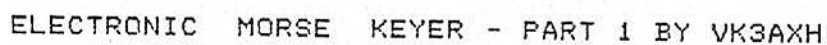
NEXT CLUB MEETING is on Friday 29th April at 7.30 to be followed by a Fox Hunt, come prepared with your D.F. Loops.

NEXT COMMITTEE MEETING is on Wednesday 11th May at 7.30pm.

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AN Auction of unrequired, preloved gear and the usual unwanted junk will be held at the May meeting.

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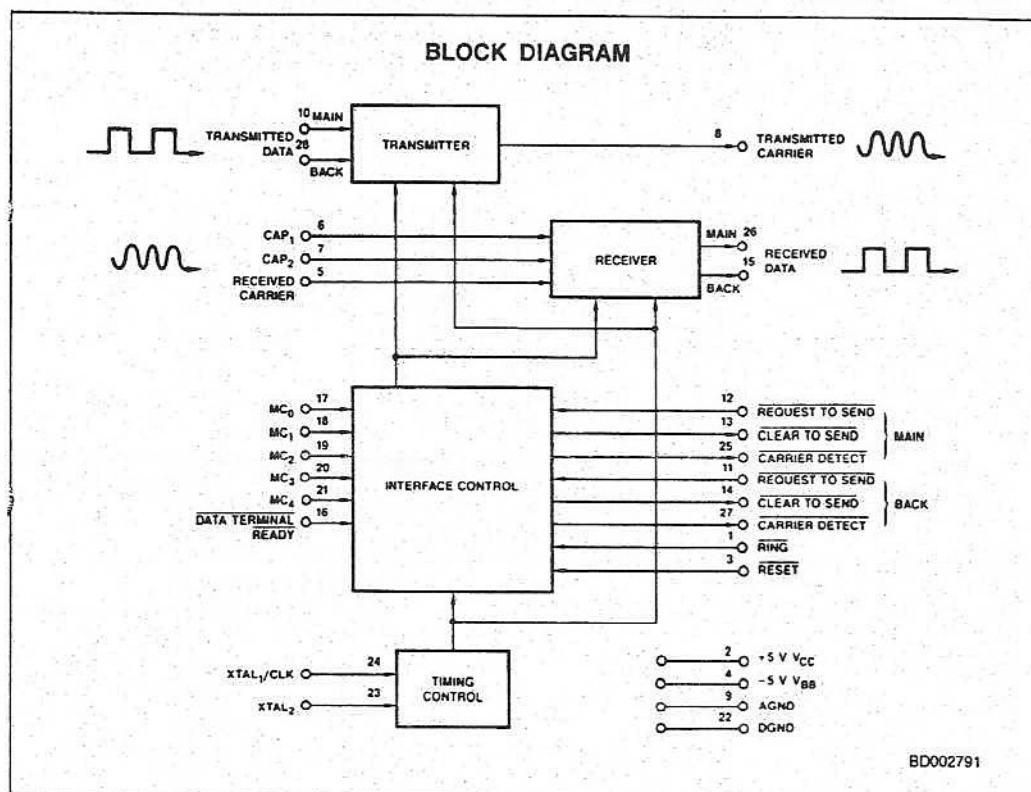


Having built a modem featured in a national magazine to put the C64 on to packet radio only to find it wouldn't work and suffered with some design problems I proceeded to "de-bug" it and come up with a "goer".

The modem interfaces with the C64 from the "data set port".

This is taken care of by the programme **Digicom** version 2 by DL2MDL which is available to all amateurs free of charge. If you are having trouble getting a suitable socket then a single sided edge connector can be used as both sides of the connector are connected in parallel - that is A is connected to 1 etc.

Perhaps a little background on the modem may help to understand how the device functions. The diagram shows the functions of the AM7910 chip which is the back tone of the device. It is a complete FSK Modem with selectable baud rates of 300, 600 or 1200 bits per second and will suit the protocols in use by Amateur radio operator - namely bell 202.



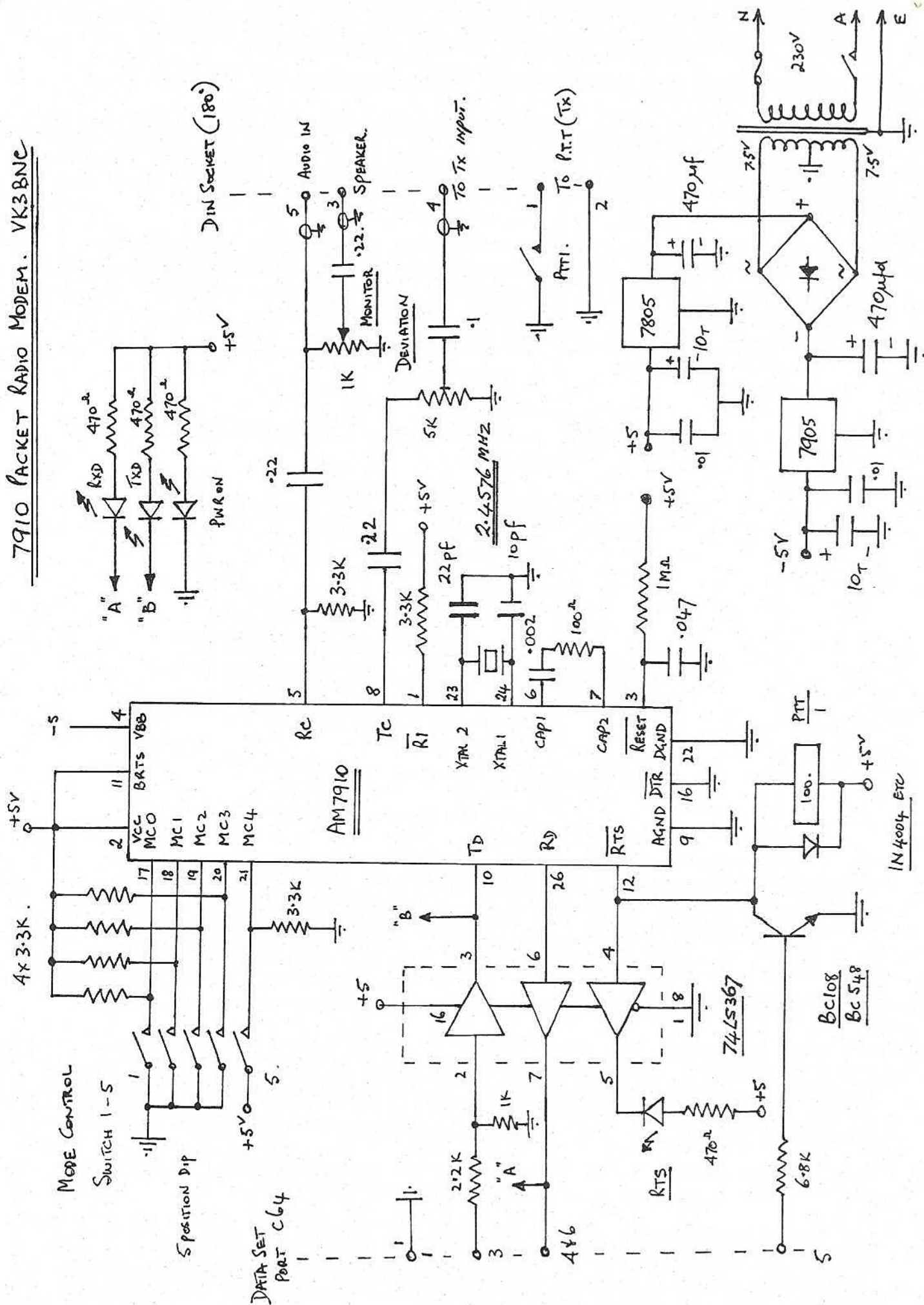
Information to and from the computer is in TTL digital form that is +5V logic 1 and 0V logic 0. This is converted into two signalling tones (F.S.K.) to modulate the F.M. transmitter on VHF or SSB for H.F. work. So a logic "1" from the computer will appear as 1200 HZ and logic zero will appear as 2200 HZ at the modem output. The reverse condition applies with the audio output from the transceiver the two tones are converted to logic levels and appear at output terminal 10.

The only other lead to worry about is the R.T.S. (ready to send) and this input requires the logic level to go from +5 volts to zero volts to tell the 7910 to enter **Transmit Mode**. This incidently was one of the problems in the original modem circuit. The other chip the 74LS367 is a Tri state Hex buffer which works as an interface between the modem chip and the C64.

Well to the modem - It can be made up on Veroboard or a P.C.B. as you like. Make sure that you wire as per the circuit.

The deviation control is pre set and mounted on the board. The monitor control is front panel mounted to adjust your receive level for room listening. The crystal is locally available as is the five section Dip Switch. The Dip Switch (Mode control) is used to set the protocol. For bell 202 turn on switches 1, 3, 4, & 5.

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The connections out to the transceiver are taken through a DIN 180° plug and socket. This has been adopted as a standard to facilitate quick testing of anyones modem saving the trouble of making up special leads.

Testing the modem after inspection for wiring faults and other problems is fairly straight forward. With the two chips out and the interconnecting cables disconnected turn it on and check for the +5v and -5 volts. Next take a shorting lead and connect +5v to term 5, data set port, the relay should operate and ground the PTT line. Turn it off, insert carefully the two chips, turn it on and re check voltages. Next tune a receiver to 7.37 MHz and listen for the 3rd harmonic of the crystal oscillator. Well so far so good. The next test really requires two, 2M transceivers tuned to channel 40 for example. Connect your modem to one and with two shorting leads put +5volts on term 3 - data set port and also on term 5 to turn on you Tx. You should hear 1200 Hz modulation coming out of your 2nd transceiver.

If a C.R.O. is available then the deviation should be set to give about the same level as your microphone gives at the input of the Tx, approx. 20 mV. Failing this an on air test with another packet station will resolve this problem. If the level is not too high the modem will not work.

Beacause the relay is energised on transmit no watchdog timer is required.

A number of these modems have now been constructed and all work OK.

Well that should have you up and going. The next step is to fiddle like the rest of us and learn how to drive it. Best of Luck.

Bob

Ballarat Amateur Radio Group Inc.

Dates for Committy and General Meetings

1988

Small room.

March 9th.

April 13th.

May 11th.

June 8th.

July 13th.

August 10th.

September 14th.

October 12th.

November 9th.

Jeff Morrison room.

March 25th.

April 29th.

May 27th.

June 24th.

July 29th.

August 26th.

September 30th.

October 28th.

November 25th.

Indoor loop aerial for short waves

by S. Mukherjee

Loop antennas are useful indoors, where they often provide rather more protection than a rod aerial against noise from electrical appliances. If an outdoor whip or long wire antenna cannot be used for short wave reception, it may be worth constructing a compact indoor loop.

The loop antenna illustrated here has a main loop which is tuned to the band being received, and a small coupling loop which extracts the signal at a low-impedance level for connection to the receiver via coaxial cable. Both loops are screened against interference by making them from coaxial cable with a short

gap in the outer conductor at the top of the loop. The screening (coax. outer) is earthed symmetrically at the bottom of each loop, using the outer of the downlead as an earth connection.

You can make a frame for the loop from wooden laths or bamboo poles using simple tools. Ideally, the frame should allow for easy rotation of the antenna (to maximize pickup and avoid unwanted nulls in the figure-eight shaped directional pattern). It should also be easy to move about to find the best spot in the room which, in general, is likely to be a short distance behind a window, but which varies from building to building.

Best results will be obtained using a well-screened communications receiver fitted with a low impedance (50-80 ohm) antenna socket: with poorly screened receivers, stray pickup will bypass the loop and increase vulnerability to interference.

Tune the loop to a weak but steady transmission, using a large, insulated knob on the tuning capacitor to reduce hand effects (better with an insulated extension spindle as well). Mount the capacitor on a panel or platform of insulating material fixed near the top of the main loop.

In some receivers the antenna terminals sit at a d.c. potential above 'earth'; with these, insert blocking capacitors (say 10nF) between antenna and receiver.

The table gives dimensions for circular loops but square loops of equal area may also be used.

Diameter of main loop	700	440	350	mm
Diameter of coupler	140	105	80	mm
Tuning cap. max.	500	200	100	pF
Tuning range	4-9	8-18	18-26	MHz

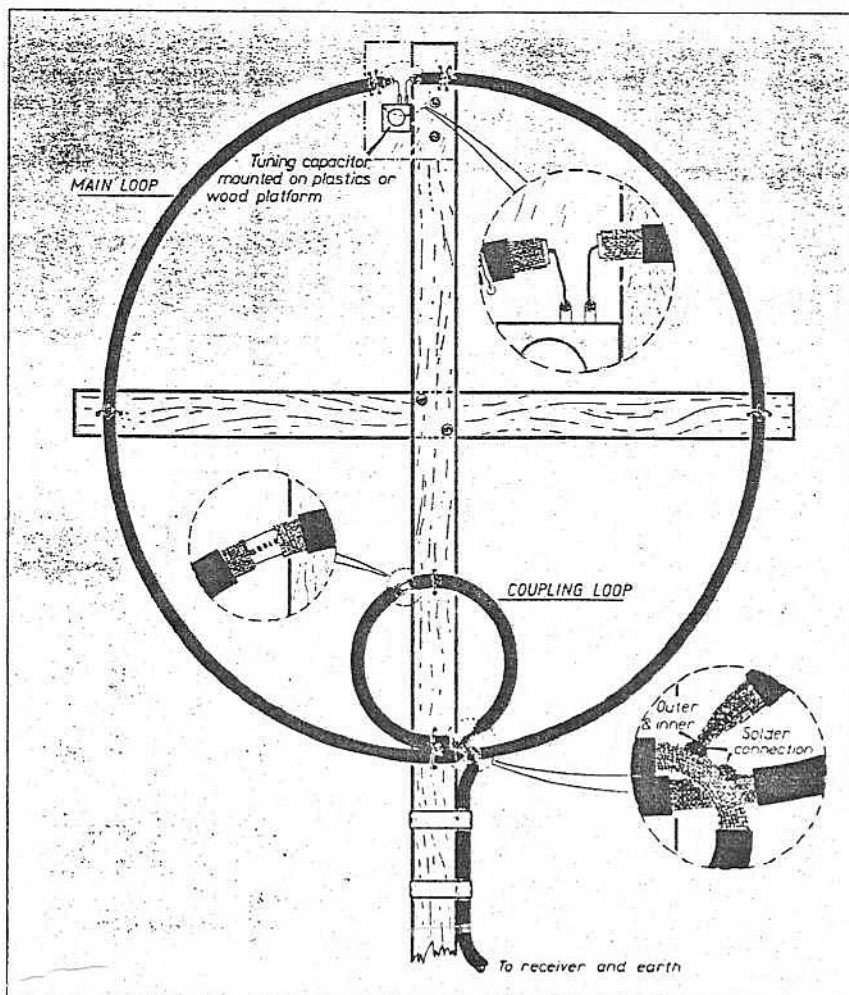


Fig.1 (facing page). Finished aerial, with (inset) detail of tuning capacitor.

Fig.2 Construction of aerial

Used with a communications receiver, a loop can help to reduce the effects of interference.

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SHORT HELICAL FOR 2M.

=====

HAVING A HIGH VEHICLE AND A LOW ROOF ON MY GARAGE I HAVE BEEN LOOKING FOR AN AERIAL FOR 2M WHICH HAD FLEXIBLE QUALITIES AND LOW PROFILE.

AFTER SEEING AN ARTICLE IN A.R.A. I DECIDED TO CONSTRUCT SAME. AND FOUND THIS TYPE OF ANTENNA WORKED WELL WITH S W R OF 1.5 OR BETTER OVER THE RANGE OF REPEATER FRQ'S.

THE AERIAL CAN BE MADE FOR HAND HELD OR ROOF TOP MOUNT ETC.

MATERIALS REQUIRED ARE =

ABOUT 350MM R G 8 COAX

1130MM OF 7 STRAND PVC COVERED WIRE (1 STRAND OF LIGHT SPEEKER CABLE IS IDEAL)

BASE FOR AERIAL (OLD WHIP BASE WHICH WILL TAKE HOLE TO SUIT RG8 DI-ELICTRIC.

350MM HEAT SHRINK TUBEING.

BNC CONNECTOR IF USED FOR HAND HELD.

REMOVE BRAID FROM COAX AND HEAT OVER GAS. WHEN WARM ENOUGH PULL OUT CENTRE CONDUCTOR. AND WHILE HOT HOLD OUT STRAIGHT AND RUN UNDER TAP TO HARDEN.

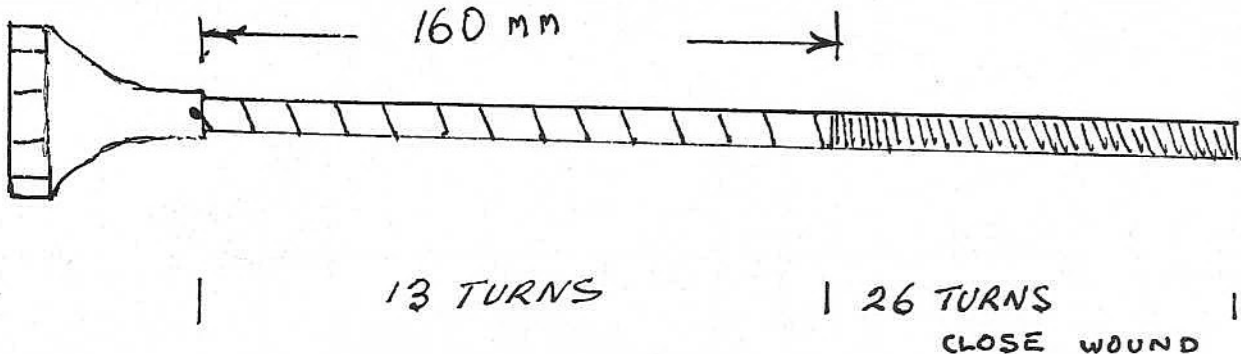
DRILL HOLE IN AERIAL BASE TO TAKE RG8 DI-ELICTRIC AND GLUE IN.

SOLDER END OF WIRE TO BASE AND WIND AS PER DIAGRAM.

HOLD END WITH TAPE AND TRIM FOR LOWEST SWR IF REQUIRED.

WHEN SATISFIED WITH ANTENNA COVER WITH HEAT SHRINK TUBE.

BEST OF LUCK VK3KQQ.



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